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CLAIMS

1 1. (Currently Amended) An implantable valve for a bodily passage of  
2 tubular shape, comprising:

3 a self-expanding support frame configured for expansion to  
4 conform to a wall of the bodily passage, said support frame having a  
5 plurality of bends, said plurality of bends configured to provide outward  
6 radial force for expansion of said self-expanding frame to anchor the  
7 implantable valve to the wall of the bodily passage, said support frame  
8 when expanded providing a plurality of side elements each defining a  
9 path extending at least partially longitudinally along the wall and at least  
10 partially circumferentially around the wall,

11 a plurality of leaflets, each leaflet thereof having a body extending  
12 from a wall-engaging outer edge to an inner edge proximate a  
13 corresponding inner edge of at least one other leaflet of the plurality of  
14 leaflets,

15 the inner edges of said plurality of leaflets cooperable to define an  
16 opening therebetween to permit fluid flow in a first direction along the  
17 bodily passage, and further cooperable to engage each other sufficiently  
18 to restrict fluid flow in a second direction opposing the first direction,

19 the outer edge of each one of the plurality of leaflets includes an  
20 attachment extending along at least selected ones of the side elements such  
21 that the outer edge is attached along one side element of said plurality of  
22 side elements and thereby adapted to resiliently and sealingly engage  
23 the wall of the bodily passage along in said path extending at least  
24 partially longitudinally and at least partially circumferentially such that  
25 the ,each leaflet extending extends along said bodily passage away from  
26 the inner edges thereof in said second direction to form ,each of said  
27 leaflets ~~thereby forming~~ a curved structure for trapping fluid against  
28 ~~between the leaflets and~~ the inner wall of the bodily passage in response  
29 to fluid flow in said second direction so as to cause said inner edges of

30 said leaflets to engage one another sufficiently to restrict fluid flow in  
31 said second direction.

1 2. (Previously Amended) The implantable valve of claim 1, wherein at  
2 least a portion of the body of the leaflet being flexible at least proximate  
3 the inner edge thereof.

1 3. (Canceled)

1 4. (Previously Amended) The implantable valve of claim 1 wherein the  
2 outer edges of the plurality of leaflets include overhanging material, the  
3 overhanging material extending beyond the frame to which the plurality  
4 of leaflets are attached.

1 5. (Previously Amended) The implantable valve of claim 1 wherein said  
2 frame comprises wire to and around which the bodies of the leaflets are  
3 secured.

1 6. (Previously Amended) The implantable valve of claim 1 wherein the  
2 plurality of leaflets includes two leaflets such that when the frame is  
3 substantially flattened, it assumes a diamond shape with the inner edges  
4 of the two leaflets defining a slit therebetween.

1 7. (Currently Amended) The implantable valve of claim 1 3 wherein the  
2 body and the frame of each leaflet comprises an integral, one-piece  
3 member.

1 8. (Currently Amended) The implantable valve of claim 7 4 wherein said  
2 integral, one-piece member is molded into a generally flat shape.

1 9. (Original) The implantable valve of claim 7 wherein said integral, one-  
2 piece member is molded into a serpentine shape.

1 10. (Previously Amended) The implantable valve of claim 1 wherein the  
2 plurality of leaflets comprises an extracellular collagen matrix.

1 11. (Previously Amended) The implantable valve of claim 10 wherein the  
2 extracellular collagen matrix includes small intestinal submucosa.

1 12. (Currently Amended) The implantable valve of claim 1 comprising a  
2 pair of opposing ~~two~~ leaflets forming a bi-leaflet valve.

1 13. (Original) The implantable valve of claim 1 wherein the frame is  
2 adapted to assume a plurality of configurations, the plurality of  
3 configurations includes a generally flat configuration, whereby the frame  
4 in the generally flat configuration is generally diamond-shaped.

1 14. (Canceled)

1 15. (Original) The implantable valve of claim 1 further including at least  
2 one barb to anchor the implantable valve to the wall of the bodily  
3 passage.

1 16. (Original) The implantable valve of Claim 15 wherein the at least one  
2 barb is integral projection extending from the frame.

1 17 - 54 (Canceled)

1 55. (Previously Amended) An implantable valve for a bodily passage of  
2 tubular shape, comprising:

3 a support frame configured for expansion to conform to a wall of  
4 the bodily passage, said support frame when expanded providing a  
5 plurality of side elements each defining a path extending at least partially  
6 longitudinally along the wall and at least partially circumferentially  
7 around the wall,

8 a plurality of leaflets comprising an extracellular collagen matrix  
9 material, each leaflet thereof having a body extending from a wall-  
10 engaging outer edge to an inner edge proximate a corresponding inner  
11 edge of at least one other leaflet of the plurality of leaflets,

12 the inner edges of said plurality of leaflets cooperable to define an  
13 opening therebetween to permit fluid flow in a first direction along the  
14 bodily passage, and further cooperable to engage each other sufficiently  
15 to restrict fluid flow in a second direction opposing the first direction,

16 the outer edge of each one of the plurality of leaflets attached  
17 along one side element of said plurality of side elements and thereby  
18 adapted to directly engage the wall of the bodily passage therearound  
19 and provide ingrowth of adjacent native tissue into the extracellular  
collagen matrix material.

1 56. (Previously Presented) The implantable valve of claim 55 wherein the  
2 collagen matrix material comprises submucosal tissue.

1 57. (Previously Presented) The implantable valve of claim 55 wherein the  
2 collagen matrix material comprises small intestinal submucosa.

1 58. (Previously Presented) An implantable valve for a bodily passage of  
2 tubular shape, comprising:

3 a frame that includes a plurality of legs, each of the legs  
4 originating from a pair of bends located about a first end of the  
5 implantable valve, and extending in an opposite direction therefrom,  
6 each of the plurality of legs terminating at a second end of the

7 implantable valve opposite the first end such that the plurality of legs  
8 generally assume a serpentine configuration along the circumference of  
9 a bodily passage when situated therein,

10 a plurality of leaflets, each leaflet comprising a covering that  
11 includes one or more flexible materials, the leaflet including a body that  
12 comprises a wall-engaging outer edge and an inner edge, the outer edge  
13 at least partially attached to, and reinforced by one of the plurality of  
14 legs, the outer edge and the associated leg adapted to sealingly engage  
15 the inner wall of the bodily passage,

16 wherein the body of the leaflet extends inward from the wall of the  
17 bodily passage and extending toward the first end of the implantable  
18 valve where it terminates at the inner edge, the body and inner edge  
19 traversing the lumen of the bodily passage when situated therein and  
20 being configured such that the leaflet is cooperable with at least one  
21 other leaflet to define an opening that permits positive flow of fluid  
22 therethrough in a first direction, while the plurality of leaflets are further  
23 adapted to trap between the leaflets and the inner wall of the bodily  
24 passage fluid flowing in a second direction opposite the first direction  
25 and seal against one another to restrict fluid flow in said second  
26 direction; and

27 wherein the frame is adapted to assume a plurality of  
28 configurations, a first configuration of the plurality of configurations  
29 being a generally flat plane.

1 59. (Previously Presented) An implantable valve for a bodily passage of  
2 tubular shape, comprising:

3 a frame that includes a plurality of legs, each of the legs  
4 originating from a pair of bends located about a first end of the  
5 implantable valve, and extending in an opposite direction therefrom,  
6 each of the plurality of legs terminating at a second end of the  
7 implantable valve opposite the first end such that the plurality of legs

8 generally assume a serpentine configuration along the circumference of  
9 a bodily passage when situated therein,

10 a plurality of leaflets, each leaflet comprising a covering that  
11 includes one or more flexible materials, the leaflet including a body that  
12 comprises a wall-engaging outer edge and an inner edge, the outer edge  
13 at least partially attached to, and reinforced by one of the plurality of  
14 legs, the outer edge and the associated leg adapted to sealingly engage  
15 the inner wall of the bodily passage,

16 wherein the body of the leaflet extends inward from the wall of the  
17 bodily passage and extending toward the first end of the implantable  
18 valve where it terminates at the inner edge, the body and inner edge  
19 traversing the lumen of the bodily passage when situated therein and  
20 being configured such that the leaflet is cooperable with at least one  
21 other leaflet to define an opening that permits positive flow of fluid  
22 therethrough in a first direction, while the plurality of leaflets are further  
23 adapted to trap between the leaflets and the inner wall of the bodily  
24 passage fluid flowing in a second direction opposite the first direction  
25 and seal against one another to restrict fluid flow in said second  
26 direction; and

27 wherein the frame is adapted to assume a plurality of  
28 configurations, a first configuration of the plurality of configurations  
29 being a generally flat plane; and

30 wherein the covering includes two leaflets such that when the  
31 frame in the generally flat configuration generally assumes a diamond  
32 shape with the inner edges of the two leaflets defining a slit  
33 therebetween.

1 60. (Currently Amended) A bi-leaflet valve prosthesis for an implantation  
2 in a blood vessel, comprising:

3 a support frame including a plurality of bends and interconnected  
4 sides, the support frame having a first configuration for intravascular

5 delivery into the blood vessel and a second configuration for  
6 implantation therein;

7 a pair of opposing plurality of leaflets, each leaflet having an inner  
8 edge and an outer edge;

9 wherein the inner edges of the opposing plurality of leaflets are  
10 cooperable with one another to permit blood flow in a first direction  
11 within the vein, while restricting blood flow in a second direction  
12 opposite the first direction; and

13 wherein the outer edge of each of the plurality of leaflets is  
14 attached to at least one of the plurality of interconnected side elements  
15 such that the plurality of outer edges engage the walls of the bodily  
16 passage and collectively form a seal thereagainst along a pathway  
17 defined by the plurality of interconnected side elements.

1 61. (Currently Amended) The valve prosthesis of claim 55 wherein the  
2 plurality of leaflets comprise a bioremodelable material.

1 62. (Previously Presented) The valve prosthesis of claim 61 wherein the  
2 plurality of leaflets comprise an extracellular collagen matrix.

1 63 (Previously Presented) The valve prosthesis of claim 60, wherein the  
2 leaflets form a curved structure for trapping fluid between the plurality  
3 of leaflets and the inner wall of the blood vessel in response to fluid flow  
4 in the second direction so as to restrict the flow passing through the  
5 valve prosthesis in the second direction.

1 64. (Currently Amended) The valve prosthesis of claims 60, wherein the  
2 plurality of bends include at least a first bend and a second bend located  
3 about the first end of the prosthesis, the first bend and the second bend  
4 interconnecting two of the plurality of interconnected sides, each of with  
5 the two interconnected sides extending a least partially longitudinally

6 from the first bend and the second bend toward the second end of the  
7 prosthesis; and wherein the inner edges of the plurality of leaflets each  
8 include a first end and a second end, each of the first and second ends  
9 being carried about at least one of the first bend and the second bend.

1 65. (Previously Presented) The valve prosthesis of claim 64, wherein the  
2 first bend and the second bend each carry one of the first end or the  
3 second end of each of the plurality of leaflets.

1 66. (New) A bi-leaflet vascular valve prosthesis, comprising:  
2 a support frame including a plurality of bends and interconnected  
3 side elements, the support frame having a first configuration for  
4 intravascular delivery and a second configuration for implantation in a  
5 vascular vessel;

6 the plurality of bends including a first bend and a second bend,  
7 wherein the first bend and the second bend are adapted to be positioned  
8 opposite one another when the support frame is in the second  
9 configuration;

10 a first leaflet and a second leaflet providing a bi-leaflet valve  
11 configuration having a valve orifice extending in a direction between the  
12 first bend and the second bend;

13 the first leaflet having a first outer edge portion attached extending  
14 along a side element connected to said first bend, and a second outer  
15 edge portion attached extending along a side element connected to the  
16 second bend; and

17 the second leaflet having a first outer edge portion attached  
18 extending along a side element connected to the first bend and a second  
19 outer edge portion attached extending along a side element connected  
20 to the second bend.

1 67. (New) The bi-leaflet valve of claims 66, wherein the first leaflet and